LONDON-WEST MIDLANDS ENVIRONMENTAL STATEMENT

Volume 5 | Technical Appendices

CFA2 | Camden Town and HS1 Link

Data appendix (LQ-001-002)

Land quality

November 2013

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1 Introduction

1.1.1 The land quality appendix for the Camden Town and HS1 Link community forum area (CFA2) comprises:

- a summary of engagement undertaken (Section 2);
- detailed risk assessment (Section 3);
- inspection notes and other site data (Section 4);
- geological sites of special scientific interest (SSSI) or regionally important geological sites (RIGS) (Section 5); and
- mining and minerals data (Section 6).

1.1.2 Maps referred to throughout the land quality appendix are contained in Maps LQ-01-002 and LQ-01-003 in Volume 5, Land Quality Map Book.

2 Engagement

2.1.1 Table 1 sets out the local authorities and other organisations that have been engaged with during the preparation of the land quality section of the environmental impact assessment (EIA) for this study area, the types of information that have been provided to the assessment team and any specific concerns of those with whom the team engaged.

Table 1: Engagement on land quality issues undertaken for the study area

Local authority or other organisation	Method/dates of contact	Information provided and/or specific concerns
London Borough of Islington (LBI)	Contacted via email on: 08 October 2012; 09 October 2012; and 31 October 2012.	LBI provided a response to the initial contact email sent to the single point of contact confirming that the council did not hold records on unexploded ordnance (UXO). In addition, a later telephone conversation and subsequent follow up email reconfirmed the initial search items and area of interest. The confirmation email listed the following items of interest within the specified search area as follows: • Part IIA[1] sites - either existing sites or those that are being investigated under Part IIA[1]; • any other notable sites of suspected land contamination; and • any ground investigation, remediation strategy or validation reports that are publicly available. An email response detailed that within the LBI search area there are no sites being investigated under Part IIA. With regard to notable sites of suspected land contamination, much of the area has a history of potentially contaminating industries and a cemex plant is still in operation. Finally in relation to ground investigation/remediation or validation reports publically available- none were found in relation to the highlighted area. Separately, the LBI mentioned that the "Islington Triangle" site bound by York Way and the Thameslink lines has planning permission for development but is currently used as a construction training centre.
London Fire Brigade (LFB)	Contacted via email on: 02 August 2013.	Contact was made by email initially, followed by a telephone conversation with LFB regarding two sites that had been identified as potentially having petroleum storage facilities within their boundaries. Petroleum storage facility enquiries were directed to the LFB for - 106 Camley Street, Camden, Greater London N1C 4PD; and - Tarmac Ltd, Freight Lane, off York Way, King's Cross, London N1C 4PD. The LFB had no record of petroleum storage for either site.

[1] *Environmental Protection Act 1990*, Part IIA, Introduced in England on 1 April 2000, London, Her Majesty's Stationary Office.

Local authority or other organisation	Method/dates of contact	Information provided and/or specific concerns
Environment Agency	Contact via email on: 24 April 2013; 15 May 2013; 24 May 2013; 12 June 2013; 14 June 2013; 27 June 2013; and 08 July 2013.	No information received that relates to the study area.
London Borough of Camden (LBC)	Contacted via email on: 31 October 2012; 08 November 2012; 09 November 2012; and 21 November 2012.	LBC provided a response to the initial contact email sent to the single point of contact which confirmed that the council were considering the request for baseline information and that the search area was a large swathe of the borough when the council usually search on the basis of individual properties. A response detailing the information already held by the project (including a search of the LBC online planning portal) was provided and it was asked whether there would be benefit in attending the council offices to try and further refine the search and/or look at any ground investigation reports that are held at the council offices. LBC advised that it was unlikely that there would be any investigation reports held by the council which are not on the planning portal. It is possible, however, that some reports may have been scanned in and held elsewhere and which may not have been placed on to the planning portal. The council advised that if a specific site report was requested and the council were not able to locate it on the planning portal, the council could search for it if provided with the site address. LBC advised that in view of the large number of premises shown on the assessment search map it would be necessary to consider the resource implications for such requests before confirming agreement to it. It was decided to approach the council on a site by site basis if needed. No further data was requested.

3 Detailed risk assessment

3.1.1 This section presents assessments for the higher risk potentially contaminated sites within the study area. For each site the following data are presented:

- baseline risk assessment;
- construction risk assessment;
- post-construction risk assessment; and
- assessment of temporary (construction) and permanent (post-construction) effects.

3.1.2 This risk assessment incorporates the following assumptions:

- construction workers are not included as part of this assessment;
- sites that have been assessed as potentially posing a contaminative risk to the Proposed Scheme have been grouped and considered together where appropriate. It should be noted that some parcels of land may have had several land uses from different epochs;
- during construction standard mitigation procedures will be in place in accordance with the draft Code of Construction Practice (CoCP) (Volume 5: Appendix CT-003-000); and
- during the post-construction condition it is assumed that all required remediation has been undertaken and carried out.

3.1.3 The sites assessed in this study area are shown on Maps LQ-01-002 and LQ-01-003 (Volume 5, Land Quality Map Book).

Table 2: Detailed risk assessment for areas potentially posing a contaminative risk within the study area

Area reference	Name	Table numbers
2-07	Railway land	3,10,17,24
2-79	Railway land	3,10,17,24
2-80	Railway land	3,10,17,24
2-63	Concrete works	4,11,18,25
2-25	Cap factory	5,12,19,26
2-62	Warehouse	5,12,19,26
2-06	Warehouse	5,12,19,26
2-19	Wharf	6,13,20,27
2-26	Steel works	6,13,20,27

Area reference	Name	Table numbers
2-22	Motor engineering works	6,13,20,27
2-59	Fuel station	7,14,21,28
2-20	Garage	7,14,21,28
2-58	Printing works	8,15,22,29
2-45	Chemical works	8,15,22,29
2-60	Vehicle repair garages	9,16,23,30

3.1.4 Contaminant types included within the risk assessments are based on the Priority Contaminants Report CLR 8[2]. Although withdrawn, this document is still commonly used and is considered good practice.

3.1.5 The remainder of this appendix presents the risk assessment for the sites set out in Table 2. The following abbreviations are used in these tables:

- CSM - conceptual site model;
- MTBE - methyl tert butyl ether;
- PAH - polycyclic aromatic hydrocarbons;
- PCB - polychlorinated biphenyls; and
- VOC - volatile organic compounds.

[2] Defra and Environment Agency, (2002), *Potential contaminants for the assessment of land- R&D Publication*, Bristol, Environment Agency.

3.1 Baseline risk assessment

Table 3: Summary CSM for on-site railway land at baseline (Area ref: 2-07/2-79/2-80)

Source	Receptor	Pathway	Probability	Consequence	Risk at baseline without mitigation
Residual contamination in made ground (e.g. ballast): PCB, metals, asbestos, PAH and chlorinated hydrocarbons); potentially low levels of ground gas (methane, carbon dioxide and VOC)	Current site users (railway staff)	Human uptake through: dermal contact, ingestion or inhalation of soil/dust, volatilised compounds	Low likelihood	Medium	Moderate/low
		Exposure to asphyxiative or explosive gases	Unlikely	Severe	Moderate/low
	Adjacent site users, such as those within residential properties and workers in the surrounding light industrial/residential areas	Off-site migration of soil vapours and volatile organic compounds (by diffusion or due to wind)	Unlikely	Minor	Very low
		Off-site migration of wind-blown dust	Low likelihood	Minor	Low
	Grand Union Canal	Leaching of soluble contaminants or migration of liquid contaminants	Low likelihood	Minor	Low
	Buildings/underground structures and services	Direct contact of fabric of buildings and services (e.g. foundations and water supply pipes)	Low likelihood	Minor	Low
		Migration of hazardous gas and vapours to confined spaces via permeable strata or conduits	Unlikely	Severe	Moderate/low

Table 4: Summary CSM for a current off-site concrete works at baseline (Area ref: 2-63)

Source	**Receptor**	**Pathway**	**Probability**	**Consequence**	**Risk at baseline without mitigation**
Contamination from on-going activities – oil/fuel hydrocarbons, heavy metals, acetone, PAH, PCB , plasticisers, sulphur and asbestos	Current site users	Human uptake through: dermal contact, ingestion or inhalation of soil/dust, volatilised compounds	Low likelihood	Medium	Moderate/low
	Adjacent site users, such as those within residential properties and workers in the surrounding light industrial/residential areas and railway areas	Off-site migration of soil vapours and volatile organic compounds (by diffusion or due to wind)	Unlikely	Minor	Very low
		Off-site migration of wind-blown dust	Low likelihood	Minor	Low
	Buildings/underground structures and services	Direct contact of fabric of buildings and services (e.g. foundations and water supply pipes)	Low likelihood	Minor	Low

Table 5: Summary CSM for a former off-site former cap factory and warehousing area at baseline (Area ref: 2-25/2-62/2-06)

Source	Receptor	Pathway	Probability	Consequence	Risk at baseline without mitigation
Residual contamination– hydrocarbons including waste oils, heavy metals, PAH, PCB and asbestos	Current site users	Human uptake through: dermal contact, ingestion or inhalation of soil/dust, volatilised compounds	Low likelihood	Medium	Moderate/low
	Adjacent site users, such as those within residential properties and workers in the surrounding light industrial/residential areas and railway areas	Off-site migration of soil vapours and volatile organic compounds (by diffusion or due to wind)	Unlikely	Minor	Very low
		Off-site migration of wind-blown dust	Unlikely	Minor	Very low
	Buildings/underground structures and services	Direct contact of fabric of buildings and services (e.g. foundations and water supply pipes)	Low likelihood	Minor	Low

Table 6: Summary CSM for a former off-site wharf, steel works and motor engineering works at baseline (Area ref: 2-19/2-26/2-22)

Source	**Receptor**	**Pathway**	**Probability**	**Consequence**	**Risk at baseline without mitigation**
Residual contamination from previous activities – hydrocarbons including waste oils, phenols, PCB, chlorinated hydrocarbons, heavy metals , semi-metals and asbestos	Current site users	Human uptake through: dermal contact, ingestion or inhalation of soil/dust, volatilised compounds	Low likelihood	Medium	Moderate/low
	Adjacent site users, such as those within residential properties and workers in the surrounding light industrial/residential areas and railway areas	Off-site migration of soil vapours and volatile organic compounds (by diffusion or due to wind)	Unlikely	Minor	Very low
		Off-site migration of wind-blown dust	Unlikely	Minor	Very low
	Grand Union Canal*	Lateral and vertical migration of mobile contamination	Low likelihood	Minor	Low
	Buildings/underground structures and services	Direct contact of fabric of buildings and services (e.g. foundations and water supply pipes)	Low likelihood	Minor	Low

* Pollutant linkage refers to 2-19 and 2-22 only

Table 7: Summary CSM for former off-site petrol station/garage at baseline (Area ref: 2-59/2-20)

Source	Receptor	Pathway	Probability	Consequence	Risk at baseline without mitigation
Residual contamination from previous activities: contaminants primarily comprising petroleum and diesel range hydrocarbons, methyl lead and MTBE	Current site users	Human uptake through: dermal contact, ingestion or inhalation of soil/dust, volatilised compounds	Low likelihood	Medium	Moderate/low
	Adjacent site users, such as those within residential properties and workers in the surrounding light industrial/residential areas and railway areas	Off-site migration of soil vapours, volatile organic compounds (by diffusion or due to wind)	Unlikely	Minor	Very low
		Off-site migration of wind-blown dust	Unlikely	Minor	Very low
	Buildings/underground structures and services	Direct contact of fabric of buildings and services (e.g. foundations and water supply pipes)	Low likelihood	Minor	Low

Table 8: Summary CSM for off-site former printing works and chemical works at baseline (Area ref: 2-58/2-45)

Source	Receptor	Pathway	Probability	Consequence	Risk at baseline without mitigation
Residual contamination from previous activities – hydrocarbons, heavy metals, phenols, acetones, aromatic hydrocarbons, PCB and asbestos	Current site users	Human uptake through: dermal contact, ingestion or inhalation of soil/dust, volatilised compounds	Low	Medium	Moderate/low
	Adjacent site users, such as those within residential properties and workers in the surrounding light industrial/residential areas and railway areas	Off-site migration of soil vapours and volatile organic compounds (by diffusion or due to wind)	Unlikely	Minor	Very low
		Off-site migration of wind-blown dust	Unlikely	Minor	Very low
	Buildings/underground structures and services	Direct contact of fabric of buildings and services (e.g. foundations and water supply pipes)	Low likelihood	Minor	Low

Table 9: Summary CSM for a current on-site vehicle repair garages at baseline (Area ref: 2-60)

Source	Receptor	Pathway	Probability	Consequence	Risk at baseline without mitigation
Contamination from on-going activities – hydrocarbons including heavy metals, PAH, chlorinated aliphatic compounds and organolead compounds	Current site users	Human uptake through: dermal contact, ingestion or inhalation of soil/dust, volatilised compounds	Low likelihood	Medium	Moderate/low
	Adjacent site users, such as those within residential properties and workers in the surrounding light industrial/residential areas and railway areas	Off-site migration of soil vapours and volatile organic compounds (by diffusion or due to wind)	Low likelihood	Minor	Low
		Off-site migration of wind-blown dust	Low likelihood	Minor	Low
	Buildings/underground structures and services	Direct contact of fabric of buildings and services (e.g. foundations and water supply pipes)	Low likelihood	Minor	Low

3.2 Construction risk assessment

Table 10: Summary CSM for on-site railway land during construction phase (Area ref: 2-07/2-79/2-80)

Source	Receptor	Pathway	Probability	Consequence	Risk with construction stage mitigation
Residual contamination in made ground (e.g. ballast): PCB, metals, asbestos, PAH and chlorinated hydrocarbons); potentially low levels of ground gas (methane, carbon dioxide and VOC)	Current site users (railway staff)	Human uptake through: dermal contact, ingestion or inhalation of soil/dust, volatilised compounds	Not present during construction		
		Exposure to asphyxiative or explosive gases	Not present during construction		
	Adjacent site users, such as those within residential properties and workers in the surrounding light industrial/residential areas	Off-site migration of soil vapours and volatile organic compounds (by diffusion or due to wind)	Unlikely	Minor	Very low
		Off-site migration of wind-blown dust	Low likelihood	Minor	Low
	Grand Union Canal	Leaching of soluble contaminants or migration of liquid contaminants	Low likelihood	Minor	Low
	Buildings/underground structures and services	Direct contact of fabric of buildings and services (e.g. foundations and water supply pipes)	Low likelihood	Minor	Low
		Migration of hazardous gas and vapours to confined spaces via permeable strata or conduits	Unlikely	Severe	Moderate/low

Table 11: Summary CSM for a current off-site concrete works during construction phase (Area ref: 2-63)

Source	Receptor	Pathway	Probability	Consequence	Risk with construction stage mitigation
Contamination from on-going activities – oil/fuel hydrocarbons, heavy metals, acetone, PAH, PCB , plasticisers, sulphur and asbestos	Current site users	Human uptake through: dermal contact, ingestion or inhalation of soil/dust, volatilised compounds	Low likelihood	Medium	Moderate/low
	Adjacent site users, such as those within residential properties and workers in the surrounding light industrial/residential areas and railway areas	Off-site migration of soil vapours and volatile organic compounds (by diffusion or due to wind)	Unlikely	Minor	Very low
		Off-site migration of wind-blown dust	Low likelihood	Minor	Low
	Buildings/underground structures and services	Direct contact of fabric of buildings and services (e.g. foundations and water supply pipes)	Low likelihood	Minor	Low

Table 12: Summary CSM for a former off-site cap factory and current warehousing area during construction phase (Area ref: 2-25/2-62/2-06)

Source	**Receptor**	**Pathway**	**Probability**	**Consequence**	**Risk with construction stage mitigation**
Residual contamination from previous activities – hydrocarbons including waste oils, heavy metals, chlorinated solvents and asbestos	Current site users	Human uptake through: dermal contact, ingestion or inhalation of soil/dust, volatilised compounds	Low likelihood	Medium	Moderate/low
	Adjacent site users, such as those within residential properties and workers in the surrounding light industrial/residential areas and railway areas	Off-site migration of soil vapours and volatile organic compounds (by diffusion or due to wind)	Unlikely	Minor	Very low
		Off-site migration of wind-blown dust	Unlikely	Minor	Very low
	Buildings/underground structures and services	Direct contact of fabric of buildings and services (e.g. foundations and water supply pipes)	Low likelihood	Minor	Low

Table 13: Summary CSM for a former off-site wharf, steel works and motor engineering works during construction phase (Area ref: 2-19/2-26/2-22)

Source	Receptor	Pathway	Probability	Consequence	Risk with construction stage mitigation
Residual contamination from previous activities – hydrocarbons including waste oils, phenols, PCB, chlorinated hydrocarbons, heavy metals , semi-metals and asbestos	Current site users	Human uptake through: dermal contact, ingestion or inhalation of soil/dust, volatilised compounds	Low likelihood	Medium	Moderate/low
	Adjacent site users, such as those within residential properties and workers in the surrounding light industrial/residential areas and railway areas	Off-site migration of soil vapours and volatile organic compounds (by diffusion or due to wind)	Unlikely	Minor	Very low
		Off-site migration of wind-blown dust	Unlikely	Minor	Very low
	Grand Union Canal*	Lateral and vertical migration of mobile contamination	Low likelihood	Minor	Low
	Buildings/underground structures and services	Direct contact of fabric of buildings and services (e.g. foundations and water supply pipes)	Low likelihood	Minor	Low

* Pollutant linkage refers to 2-19 and 2-22 only

Table 14: Summary CSM for a former off-site fuel station/garage during construction phase (Area ref: 2-59/2-20)

Source	**Receptor**	**Pathway**	**Probability**	**Consequence**	**Risk with construction stage mitigation**
Residual contamination from former activities: contaminants primarily comprising petroleum and diesel range hydrocarbons, methyl lead and MTBE	Current site users	Human uptake through: dermal contact, ingestion or inhalation of soil/dust, volatilised compounds	Low likelihood	Medium	Moderate/low
	Adjacent site users, such as those within residential properties and workers in the surrounding light industrial/residential areas and railway areas	Off-site migration of soil vapours, volatile organic compounds (by diffusion or due to wind)	Unlikely	Minor	Very low
		Off-site migration of wind-blown dust	Unlikely	Minor	Very low
	Buildings/underground structures and services	Direct contact of fabric of buildings and services (e.g. foundations and water supply pipes)	Low likelihood	Minor	Low

Table 15: Summary CSM for a former off-site former printing works and chemical works during construction phase (Area ref: 2-58/2-45)

Source	Receptor	Pathway	Probability	Consequence	Risk with construction stage mitigation
Residual contamination from previous activities - hydrocarbons, heavy metals, phenols, acetones, aromatic hydrocarbons, PCB and asbestos	Current site users	Human uptake through: dermal contact, ingestion or inhalation of soil/dust, volatilised compounds	Low	Medium	Moderate/low
	Adjacent site users, such as those within residential properties and workers in the surrounding light industrial/residential areas and railway areas	Off-site migration of soil vapours and volatile organic compounds (by diffusion or due to wind)	Unlikely	Minor	Very low
		Off-site migration of wind-blown dust	Unlikely	Minor	Very low
	Buildings/underground structures and services	Direct contact of fabric of buildings and services (e.g. foundations and water supply pipes)	Low likelihood	Minor	Low

Table 16: Summary CSM for a current on-site vehicle repair garages at construction phase (Area ref: 2-60)

Source	Receptor	Pathway	Probability	Consequence	Risk with construction stage mitigation
Contamination from on-going activities – hydrocarbons including heavy metals, PAH, chlorinated aliphatic compounds and organolead compounds	Current site users	Human uptake through: dermal contact, ingestion or inhalation of soil/dust, volatilised compounds	Not present during construction		
	Adjacent site users, such as those within residential properties and workers in the surrounding light industrial/residential areas and railway areas	Off-site migration of soil vapours and volatile organic compounds (by diffusion or due to wind)	Low likelihood	Minor	Low
		Off-site migration of wind-blown dust	Low likelihood	Minor	Low
	Buildings/underground structures and services	Direct contact of fabric of buildings and services (e.g. foundations and water supply pipes)	Low likelihood	Minor	Low

3.3 Post-construction risk assessment

Table 17: Summary CSM for on-site railway land at post construction stage (Area ref: 2-07/2-79/2-80)

Source	Receptor	Pathway	Probability	Consequence	Risk with permanent works mitigation
Residual contamination in made ground (e.g. ballast): PCB, metals, asbestos, PAH and chlorinated hydrocarbons); potentially low levels of ground gas (methane, carbon dioxide and VOC)	Future site users (railway staff)	Human uptake through: dermal contact, ingestion or inhalation of soil/dust, volatilised compounds	Low	Minor	Low
		Exposure to asphyxiative or explosive gases	Unlikely	Severe	Moderate/low
	Adjacent site users, such as those within residential properties and workers in the surrounding light industrial/residential areas	Off-site migration of soil vapours and volatile organic compounds (by diffusion or due to wind)	Unlikely	Minor	Very low
		Off-site migration of wind-blown dust	Unlikely	Minor	Very low
	Grand Union Canal	Leaching of soluble contaminants or migration of liquid contaminants	Unlikely	Minor	Very low
	Buildings/underground structures and services	Direct contact of fabric of buildings and services (e.g. foundations and water supply pipes)	Low	Minor	Low
		Migration of hazardous gas and vapours to confined spaces via permeable strata or conduits	Low	Minor	Low

Table 18: Summary CSM for a current off-site cement works at post construction stage (Area ref: 2-63)

Source	**Receptor**	**Pathway**	**Probability**	**Consequence**	**Risk with permanent works mitigation**
Contamination from on-going activities – oil/fuel hydrocarbons, heavy metals, acetone, PAH, PCB , plasticisers, sulphur and asbestos	Future site users	Human uptake through: dermal contact, ingestion or inhalation of soil/dust, volatilised compounds	Low likelihood	Medium	Moderate/low
	Adjacent site users, such as those within residential properties and workers in the surrounding light industrial/residential areas and railway areas	Off-site migration of soil vapours and volatile organic compounds (by diffusion or due to wind)	Unlikely	Minor	Very low
		Off-site migration of wind-blown dust	Low likelihood	Minor	Low
	Buildings/underground structures and services	Direct contact of fabric of buildings and services (e.g. foundations and water supply pipes)	Low likelihood	Minor	Low

Table 19: Summary CSM for a former off-site cap factory current warehousing area at post construction stage (Area ref: 2-25/2-62/2-06)

Source	Receptor	Pathway	Probability	Consequence	Risk with permanent works mitigation
Residual contamination– hydrocarbons including waste oils, heavy metals, PAH, PCB and asbestos	Future site users	Human uptake through: dermal contact, ingestion or inhalation of soil/dust, volatilised compounds	Low likelihood	Medium	Moderate/low
	Adjacent site users, such as those within residential properties and workers in the surrounding light industrial/residential areas and railway areas	Off-site migration of soil vapours and volatile organic compounds (by diffusion or due to wind)	Unlikely	Minor	Very low
		Off-site migration of wind-blown dust	Unlikely	Minor	Very low
	Buildings/underground structures and services	Direct contact of fabric of buildings and services (e.g. foundations and water supply pipes)	Low likelihood	Minor	Low

Table 20: Summary CSM for former off-site wharf, steel works and motor engineering works at post construction stage (Area ref: 2-19/2-26/2-22)

Source	**Receptor**	**Pathway**	**Probability**	**Consequence**	**Risk with permanent works mitigation**
Residual contamination from previous activities – hydrocarbons including waste oils, phenols, PCB, chlorinated hydrocarbons, heavy metals, semi-metals and asbestos	Future site users	Human uptake through: dermal contact, ingestion or inhalation of soil/dust, volatilised compounds	Low likelihood	Medium	Moderate/low
	Adjacent site users, such as those within residential properties and workers in the surrounding light industrial/residential areas and railway areas	Off-site migration of soil vapours and volatile organic compounds (by diffusion or due to wind)	Unlikely	Minor	Very low
		Off-site migration of wind-blown dust	Unlikely	Minor	Very low
	Grand Union Canal*	Lateral and vertical migration of mobile contamination	Low likelihood	Minor	Low
	Buildings/underground structures and services	Direct contact of fabric of buildings and services (e.g. foundations and water supply pipes)	Low likelihood	Minor	Low

* Pollutant linkage refers to 2-19 and 2-22 only

Table 21: Summary CSM for a former off-site petrol station/garage at post construction stage (Area ref: 2-59/2-20)

Source	Receptor	Pathway	Probability	Consequence	Risk with permanent works mitigation
Residual contamination from previous activities: contaminants primarily comprising petroleum and diesel range hydrocarbons, methyl lead and MTBE	Future site users	Human uptake through: dermal contact, ingestion or inhalation of soil/dust, volatilised compounds	Low likelihood	Medium	Moderate/low
	Adjacent site users, such as those within residential properties and workers in the surrounding light industrial/residential areas and railway areas	Off-site migration of soil vapours and volatile organic compounds (by diffusion or due to wind)	Unlikely	Minor	Very low
		Off-site migration of wind-blown dust	Unlikely	Minor	Very low
	Buildings/underground structures and services	Direct contact of fabric of buildings and services (e.g. foundations and water supply pipes)	Low likelihood	Minor	Low

Table 22: Summary CSM for a former off-site former printing works and chemical works during post construction phase (Area ref: 2-58/2-45)

Source	**Receptor**	**Pathway**	**Probability**	**Consequence**	**Risk with permanent works mitigation**
Residual contamination– hydrocarbons, heavy metals, phenols, acetones, aromatic hydrocarbons, PCB and asbestos	Future site users	Human uptake through: dermal contact, ingestion or inhalation of soil/dust, volatilised compounds	Low	Medium	Moderate/low
	Adjacent site users, such as those within residential properties and workers in the surrounding light industrial/residential areas and railway areas	Off-site migration of soil vapours and volatile organic compounds (by diffusion or due to wind)	Unlikely	Minor	Very low
		Off-site migration of wind-blown dust	Unlikely	Minor	Very low
	Buildings/underground structures and services	Direct contact of fabric of buildings and services (e.g. foundations and water supply pipes)	Low likelihood	Minor	Low

Table 23: Summary CSM for a current on-site vehicle repair garages at post construction phase (Area ref: 2-60)

Source	Receptor	Pathway	Probability	Consequence	Risk with permanent works mitigation
Contamination from on-going activities - hydrocarbons including heavy metals, PAH, chlorinated aliphatic compounds and organolead compounds	Future site users	Human uptake through: dermal contact, ingestion or inhalation of soil/dust, volatilised compounds	Unlikely	Minor	Very low
	Adjacent site users, such as those within residential properties and workers in the surrounding light industrial/residential areas and railway areas	Off-site migration of soil vapours and volatile organic compounds (by diffusion or due to wind)	Unlikely	Minor	Very low
		Off-site migration of wind-blown dust	Unlikely	Minor	Very low
	Buildings/underground structures and services	Direct contact of fabric of buildings and services (e.g. foundations and water supply pipes)	Unlikely	Minor	Very low

3.4 Assessment of temporary (construction) and permanent (post-construction) effects

Table 24: Significance of impact during construction/post construction for on-site railway land (Area ref: 2-072-79/2-80)

Contaminant linkage	Baseline	Construction	Post-construction	Construction effects	Post-construction effects
Exposure of on-site human receptors to contamination by direct contact, ingestion and inhalation of contaminants in soil, soil-derived dust or contaminated water	Moderate/low	N/A	Low	Negligible	Minor beneficial
Exposure of on-site humans to contamination by inhalation of ground-gas and volatile vapours from contaminated soil/water	Moderate/low	N/A	Moderate/low	Negligible	Negligible
Exposure of adjacent human receptors (residents) to contamination by inhalation of migrating ground-gas and volatile vapours from contaminated soil/water	Very low	Very low	Very low	Negligible	Negligible
Exposure of adjacent human receptors (in commercial properties) to contamination by direct contact, ingestion and inhalation of contaminants in windblown, soil-derived dust	Low	Low	Very low	Negligible	Minor beneficial
Lateral and vertical migration of mobile contamination into the Grand Union Canal	Low	Low	Very low	Negligible	Minor beneficial
Migration of contamination and direct contact of fabric of buildings and services (e.g. foundations and water supply pipes)	Low	Low	Low	Negligible	Negligible
Migration of hazardous gas and vapours to confined spaces via permeable strata or conduits	Moderate/low	Moderate/low	Low	Negligible	Minor beneficial
Overall significance				Negligible effect	Negligible to minor beneficial effect

Table 25: Significance of impact during construction/post construction for an off-site cement works (Area ref: 2-63)

Contaminant linkage	**Baseline**	**Construction**	**Post-construction**	**Construction effects**	**Post-construction effects**
Exposure of on-site human receptors to contamination by direct contact, ingestion and inhalation of contaminants in soil, soil-derived dust or contaminated water	Moderate/low	Moderate/low	Moderate/low	Negligible	Negligible
Exposure of adjacent human receptors (residents) to contamination by inhalation of volatile vapours from contaminated soil/water	Very low	Very low	Very low	Negligible	Negligible
Exposure of adjacent human receptors (in commercial properties) to contamination by direct contact, ingestion and inhalation of contaminants in windblown, soil-derived dust	Low	Low	Low	Negligible	Negligible
Migration of contamination and direct contact of fabric of buildings and services (e.g. foundations and water supply pipes)	Low	Low	Low	Negligible	Negligible
Overall significance				Negligible effect	Negligible effect

Table 26: Significance of impact during construction/post construction for a former off-site cap factory (Area ref: 2-25/2-62/2-06)

Contaminant linkage	**Baseline**	**Construction**	**Post-construction**	**Construction effects**	**Post-construction effects**
Exposure of on-site human receptors to contamination by direct contact, ingestion and inhalation of contaminants in soil, soil-derived dust or contaminated water	Moderate/low	Moderate/low	Moderate/low	Negligible	Negligible
Exposure of adjacent human receptors (residents) to contamination by inhalation of volatile vapours from contaminated soil/water	Very low	Very low	Very low	Negligible	Negligible
Exposure of adjacent human receptors (in commercial properties) to contamination by direct contact, ingestion and inhalation of contaminants in windblown, soil-derived dust	Very low	Very low	Very low	Negligible	Negligible
Migration of contamination and direct contact with buildings receptors including foundations and services	Low	Low	Low	Negligible	Negligible
Overall significance				Negligible effect	Negligible effect

Table 27: Significance of impact during construction/post construction for former off-site wharf, steel works and motor engineering works (Area ref: 2-19/2-26/2-22)

Contaminant linkage	**Baseline**	**Construction**	**Post-construction**	**Construction effects**	**Post-construction effects**
Exposure of on-site human receptors to contamination by direct contact, ingestion and inhalation of contaminants in soil, soil-derived dust or contaminated water	Low	Low	Low	Negligible	Negligible
Exposure of adjacent human receptors (residents) to contamination by inhalation of volatile vapours from contaminated soil/water	Very low	Very low	Very low	Negligible	Negligible
Exposure of adjacent human receptors (in commercial properties) to contamination by direct contact, ingestion and inhalation of contaminants in windblown, soil-derived dust	Very low	Very low	Very low	Negligible	Negligible
Lateral and vertical migration of mobile contamination into the Grand Union Canal	Low	Low	Low	Negligible	Negligible
Migration of contamination and direct contact with buildings receptors including foundations and services	Low	Low	Low	Negligible	Negligible
Overall significance				Negligible effect	Negligible effect

Table 28: Significance of impact during construction/post construction for a former off-site disused petrol station /garage and current MOT repair garage (Area ref: 2-59/2-20)

Contaminant linkage	**Baseline**	**Construction**	**Post-construction**	**Construction effects**	**Post-construction effects**
Exposure of on-site human receptors to contamination by direct contact, ingestion and inhalation of contaminants in soil, soil-derived dust or contaminated water	Moderate/low	Moderate/low	Moderate/low	Negligible	Negligible
Exposure of adjacent human receptors (residents) to contamination by inhalation of volatile vapours from contaminated soil/water	Very low	Very low	Very low	Negligible	Negligible
Exposure of adjacent human receptors (in commercial properties) to contamination by direct contact, ingestion and inhalation of contaminants in windblown, soil-derived dust	Very low	Very low	Very low	Negligible	Negligible
Migration of contamination and direct contact with buildings receptors including foundations and services	Low	Low	Low	Negligible	Negligible
Overall significance				Negligible effect	Negligible effect

Table 29: Significance of impact during construction/post construction for former off-site printing and chemical works (Area ref: 2-58/2-45)

Contaminant linkage	**Baseline**	**Construction**	**Post-construction**	**Construction effects**	**Post-construction effects**
Exposure of on-site human receptors to contamination by direct contact, ingestion and inhalation of contaminants in soil, soil-derived dust or contaminated water	Low	Low	Low	Negligible	Negligible
Exposure of adjacent human receptors (residents) to contamination by inhalation of volatile vapours from contaminated soil/water	Very low	Very low	Very low	Negligible	Negligible
Exposure of adjacent human receptors (in commercial properties) to contamination by direct contact, ingestion and inhalation of contaminants in windblown, soil-derived dust	Very low	Very low	Very low	Negligible	Negligible
Migration of hazardous gas and vapours to confined spaces via permeable strata or conduits	Low	Low	Low	Negligible	Negligible
Overall significance				Negligible effect	Negligible effect

Table 30: Significance of impact during construction/post construction for a current onsite vehicle repair garages (Area ref: 2- 60)

Contaminant linkage	**Baseline**	**Construction**	**Post-construction**	**Construction effects**	**Post-construction effects**
Exposure of on-site human receptors to contamination by direct contact, ingestion and inhalation of contaminants in soil, soil-derived dust or contaminated water	Moderate/low	N/A	Very low	N/A	Moderate beneficial
Exposure of adjacent human receptors (residents) to contamination by inhalation of volatile vapours from contaminated soil/water	Low	Low	Very low	Negligible	Minor beneficial
Exposure of adjacent human receptors (in commercial properties) to contamination by direct contact, ingestion and inhalation of contaminants in windblown, soil-derived dust	Low	Low	Very low	Negligible	Minor beneficial
Migration of hazardous gas and vapours to confined spaces via permeable strata or conduits	Low	Low	Very low	Negligible	Minor beneficial
Overall significance				Negligible effect	Negligible to moderate beneficial effect

4 Inspections notes and other site data

4.1.1 This section presents the following data:

- names of ground investigation or contamination survey reports reviewed during the study period; and
- any other relevant site data.

4.1.2 There were no site visits carried out due to access constraints.

Table 31: Review of ground investigations for areas located within the study area

Local authority area	Description of report (Phase 1, phase 2, validation/ remediation etc.)	Report date	Name of originator	Address of area	Type of scheme, e.g. residential/ commercial development	Planning application reference number
LBC	Contamination and remediation assessment	August 2011	Card Geotechnics	103 Camley Street	Demolition of existing industrial buildings and the erection of a building ranging from 4-12 storeys to create a mixed use development including residential developments, retail units) and associated works and improvements to public realm including canal footpath	2011/5695/P
LBC	Environmental assessment and Phase 2	July 2010	A.P Geotechnics	140 Royal College Street, NW1 0TA	Development of a building extension	2010/3704/P
LBC	Ground investigation report	May 2007	Geotechnical and Environmental Associates Ltd	30 Oval Road NW1 7DE	Site redevelopment for residential properties	2007/2731/P
LBC	Contaminated land risk assessment	December 2010	Soil Environment Services Ltd	86-88 Delancey Street, NW1 7SA	Site redevelopment by the erection of a five-storey building with office space and residential space	2010/6706/P

Local authority area	Description of report (Phase 1, phase 2, validation/ remediation etc.)	Report date	Name of originator	Address of area	Type of scheme, e.g. residential/ commercial development	Planning application reference number
LBC	Ground investigation report	2007	Geotechnical and Environmental Associates Ltd	129 Albert Street, NW1 7NB	Erection of new poster box on Albert Street, erection of a two storey extension and removal of existing open fire escape and replacement with an enclosed fire escape to the south-west elevation of No. 79 Parkway, for the Jewish Museum	2008/0806/P
LBC	Site assessment, drainage report and remediation report	September 2007	SLR Group Limited	Former Parkway Service Station R/o 120 Parkway and adjacent 1 Gloucester Crescent London, NW1 7AN	Remediation works - removal of underground storage tanks and related contaminated soil at the former petrol station	2005/2019/P

5 Geological sites of special scientific interest and local geological sites

5.1.1 There are no geo-conservation resources identified within the study area.

6 Mining and minerals data

6.1.1 There are no mining or mineral extraction sites within the study area. There are no minerals safeguarding areas or planned extraction sites indicated to be present within the study area by the minerals planning authority.

7 References

Defra and Environment Agency, (2002), *Potential contaminants for the assessment of land- R&D Publication*, Bristol, Environment Agency.

Environmental Protection Act 1990, Part IIA, Introduced in England on 1 April 2000, London, Her Majesty's Stationary Office.